UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,411	09/30/2003	Junichiro Suzuki	031128	2707

23850 7590 10/27/2006

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER	
WARTALOWICZ, PAUL A	

ART UNIT	PAPER NUMBER
1754	

DATE MAILED: 10/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/673,411	SUZUKI ET AL.	
	Examiner	Art Unit	
	Paul A. Wartalowicz	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 5-8* is/are pending in the application.

4a) Of the above claim(s) *3,4 and 9* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 5-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

Applicant's arguments filed 8/16/06 have been fully considered but they are not persuasive.

Applicant argues that the Smith et al. patent relates to a fuel transport hose constructed of polyalkylene terephthalate or polyalkylene naphthalate and that such an inner layer is very hard and may have a defect such as a craze, which deteriorates the low fuel permeability and that disadvantages are shown in Comparative Examples (C.E.) 1 and 2 and that C.E. 1 is formed soley with PBT and C.E. soley with PBN. This argument is not persuasive for the following reasons.

Smith et al. is not relied upon to teach the limitation of core shell rubber component of the inner layer of the fuel hose. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant points out that the Smith et al. patent is deficient in teaching all the limitations of the invention as claimed. The combined teachings of Smith et al., Lee et al., and Kawazura et al. teach or suggest the invention as claimed including advantageous properties therewith.

Applicant argues that in distinct contrast, the fuel hose of the presently claimed invention achieves advantageous low fuel permeability by reinforcing PBT and/or PBN

by blending particles having core-shell structure and that Smith et al. does not teach the inclusion of such particles. This argument is not persuasive for the following reasons.

Smith et al. is not relied upon to teach the limitation of core shell rubber component of the inner layer of the fuel hose. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant points out that the Smith et al. patent is deficient in teaching all the limitations of the invention as claimed. The combined teachings of Smith et al., Lee et al., and Kawazura et al. teach or suggest the invention as claimed including advantageous properties therewith.

Applicant argues that core-shell structure teaching deficiencies are not supplied by the Lee et al. patent and that Lee et al. discloses a polyamide resin composition which comprises 45-70 parts by weight of polyamide resin; 15-35 parts by weight of impact resistant component such as EPM; 5-15 parts by weight of plasticizer; 0.1-3 parts by weight of thickener; and 0.5-5 parts by weight of core-shell rubber. This argument is not persuasive for the following reasons.

Lee et al. teach a polyamide resin composition that comprises 30-95 parts by weight of polyamide resin; 1-45 parts by weight of impact resistant component such as EPM; 0.1-20 parts by weight of plasticizer; 0.01-5 parts by weight of thickener; and 0.5-10 parts by weight of core-shell rubber (col. 2, lines 30-50). Lee et al. teaches ranges

for the components stated above in applicants arguments prefaced with "preferably, in the amount of"; these teachings of ranges is non-limiting as only an embodiment of the invention such that that the ranges in column 2 of the Lee patent are also valid. In addition to this, the impact resistant component can comprise core-shell rubber (col. 2, lines 42-44). This teaching discloses that in addition to the 0.5-10 parts by weight of core shell rubber, there is an additional 1-45 parts by weight of core-shell rubber in the composition.

Applicant argues that the Lee et al. patent fails to teach core-shell rubber is present in a proportion of 5-60 parts by weight of the polyester resin such as PBT and PBN and a material comprising polyester resin and core-shell rubber is used for an inner layer of a fuel hose which is to be in contact with fuels such as gasoline. This argument is not persuasive for the following reasons.

Lee et al. teach a polyamide resin composition that comprises 30-95 parts by weight of polyamide resin; 1-45 parts by weight of impact resistant component such as EPM; 0.1-20 parts by weight of plasticizer; 0.01-5 parts by weight of thickener; and 0.5-10 parts by weight of core-shell rubber (col. 2, lines 30-50). Lee et al. teaches ranges for the components stated above in applicants arguments prefaced with "preferably, in the amount of"; these teachings of ranges is non-limiting as only an embodiment of the invention such that that the ranges in column 2 of the Lee patent are also valid. In addition to this, the impact resistant component can comprise core-shell rubber (col. 2, lines 42-44). This teaching discloses that in addition to the 0.5-10 parts by weight of

core shell rubber, there is an additional 1-45 parts by weight of core-shell rubber in the composition. Additionally, Lee et al. teach the polyamide resin can be a polyamide blended or copolymerized with PBT (col. 4, lines 15-30; claim 4). Because Lee et al. is silent about the proportions of PBT to the polyamide resin in the blend, it would be obvious the blend can be anywhere from 10-80% PBT. Considering a blend of 90% polyamide and 10% PBT; based on the entire composition, PBT would be present in a proportion of 9.5 parts (10% of 95 parts of polyamide resin) by weight with core shell rubber in a proportion of 0.5 parts per weight which is slightly more than 5 parts by weight of core-shell particles based on 100 parts by weight of polyester resin. Considering a blend of 20% polyamide and 80% PBT; based on the entire composition, PBT would be present in a proportion of 76 parts (80% of 95 parts of polyamide resin) by weight with core shell rubber in a proportion of 10 parts per weight which approximately 13 parts by weight of core shell particles based on 100 parts by weight of polyester resin.

Applicant argues that the Lee et al. patent fails to disclose that layers other than a layer comprising polyester resin and core-shell rubber comprise a polyester resin material. This argument is not persuasive for the following reasons.

Lee et al. is not relied upon to teach that layers other than a layer comprising polyester resin and core-shell rubber comprise a polyester resin material. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on

combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that the polyamide resin composition of Lee et al. essentially comprises impact resistant component, plasticizer, and thickener and that the inner layer of the fuel hose of the presently claimed invention substantially comprises a specific polyester resin and particles each having a core-shell structure and that the subject fuel hose composition does not require a large amount of impact resistant component as well as plasticizer and thickener. This argument is not persuasive for the following reasons.

Lee et al. teach a polyamide resin composition that comprises 30-95 parts by weight of polyamide resin; 1-45 parts by weight of impact resistant component such as EPM; 0.1-20 parts by weight of plasticizer; 0.01-5 parts by weight of thickener; and 0.5-10 parts by weight of core-shell rubber (col. 2, lines 30-50). Lee et al. teaches ranges for the components stated above in applicants arguments prefaced with "preferably, in the amount of"; these teachings of ranges is non-limiting as only an embodiment of the invention such that that the ranges in column 2 of the Lee patent are also valid. In addition to this, the impact resistant component can comprise core-shell rubber (col. 2, lines 42-44). This teaching discloses that in addition to the 0.5-10 parts by weight of core shell rubber, there is an additional 1-45 parts by weight of core-shell rubber in the composition. Additionally, Lee et al. teach the polyamide resin can be a polyamide blended or copolymerized with PBT (col. 4, lines 15-30; claim 4). Because Lee et al. is

silent about the proportions of PBT to the polyamide resin, it would be obvious the blend can be anywhere from 10-80% PBT. Considering a blend of 90% polyamide and 10% PBT; based on the entire composition, PBT would be present in a proportion of 9.5 parts (10% of 95 parts of polyamide resin) by weight with core shell rubber in a proportion of 0.5 parts per weight which is slightly more than 5 parts by weight of core-shell particles based on 100 parts by weight of polyester resin. Considering a blend of 20% polyamide and 80% PBT; based on the entire composition, PBT would be present in a proportion of 76 parts (80% of 95 parts of polyamide resin) by weight with core shell rubber in a proportion of 10 parts per weight which approximately 13 parts by weight of core shell particles based on 100 parts by weight of polyester resin. That the polyamide resin composition can comprise 88 parts by weight of polyamide resin; 10 parts by weight of core-shell particles; 1 part by weight of impact resistant core-shell particles; 0.5 parts by weight of plasticizer; and 0.5 parts by weight of thickener (col. 2, lines 30-50). From this teaching, the disclosure of Lee et al. is not limited to the embodiment of a polyamide resin composition essentially comprising impact resistant component, plasticizer, and thickener.

Applicant argues that there is no teaching in Lee et al. regarding the materials forming each layer of the hose of their proportions in a fuel hose and the use of the polyester resin composition as an inner layer material of a hose for motor vehicles or a teaching regarding the use of PET or PBT as the inner layer material and their

combination with particles each having a core-shell structure. This argument is not persuasive for the following reasons.

Lee et al. is not relied upon to teach that the PBT/core-shell particle composition as the inner layer. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Lee et al. is combined with Smith et al. to teach that it is obvious to combine a composition comprising PBT with core shell particles for increased flexibility, impact resistance (col. 2, lines 15-20), and high gasoline resistance (col. 1, lines 64-67). Even though not relied upon to teach an inner layer composition, Lee et al. suggests that the polyamide resin composition can be used for an inner layer of a fuel hose by teaching high gasoline resistance (col. 1, lines 64-67).

Applicant argues that the Kawazura et al. patent does not teach or suggest that the inner layer of a hose comprises the thermoplastic copolyester elastomer and rubber having core-shell structure or the proportions of the above components as presently claimed. This argument is not persuasive for the following reasons.

Kawazura et al. is not relied upon to teach that the inner layer of a hose comprises the thermoplastic copolyester elastomer and rubber having core-shell structure or the proportions of the above components as presently claimed. In response to applicant's arguments against the references individually, one cannot show

nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that one of ordinary skill would not be led to combine the teachings of Smith et al., Lee et al., and Kawazura et al. and that Lee et al. primarily relates to a polyamide resin composition, while Smith et al. relates to a fuel transport hose constructed of a specific polyester resin such as polyalkylene terephthalate or a polyalkylene naphthalate and that since polyamide resin and a polyester resin are completely different, one of ordinary skill could not predict the combination of these two resins. This argument is not persuasive for the following reasons.

The Lee et al. reference discloses a polyamide resin comprising a blend of polyamide and PBT (col. 4, lines 15-30; claim 4), such that Lee et al. relates to a polyamide/polyester blend composition. Smith et al. teaches that a layer can comprise a blend of polyester and polyamide (col. 3, lines 52-60). Therefore, both Smith et al. and Lee et al. teach a fuel hose having substantially similar compositions. Also, Lee et al. teach that the invention has advantages such as high gasoline resistance (col. 1, lines 64-67) and therefore, it would be obvious to one of ordinary skill in the art to combine Lee et al. with Smith et al.

Applicant argues that the mere fact that the polyamide composition containing core-shell particles of Lee et al. may contain a polyester would not suggest to one of

ordinary skill that such particles could be incorporated into the polyester resin used in the hose according to the Smith patent and that one of ordinary skill would have no motivation to combine the teachings of the cited patents in the manner attempted in the rejection. This argument is not persuasive for the following reasons.

Because Lee et al. teach that the polyamide resin composition comprising core-shell particles further comprises PBT suggests that the core-shell particles can be incorporated with PBT and one of ordinary skill in the art would recognize the combination with the PBT of Smith et al. Lee et al. provides the motivation of advantages such as high gasoline resistance (col. 1, lines 64-67) for the polyamide resin composition of the Lee et al., which comprises core-shell particles and PBT which would lead one of ordinary skill in the art to combine the teachings of Lee et al. with teachings of Smith et al.

Applicant argues that the Lee et al. patent teaches polyamide compositions suitable for fuel lines where core-shell particles are incorporated therein for the purposes of improving the external appearance, elongation under tension, and impact resistance under cold environment and that Smith et al. is directed to the use of polyalkylene terephthalate or polyalkylene naphthalate as an inner layer so as to prevent permeation of fuel liquid. This argument is not persuasive for the following reasons.

Lee et al. teach that a composition capable of providing high gasoline resistance is used (col. 1, line 64-col. 2, line 5). This is the motivation of combining the core-shell

rubber of Lee et al. with the PBT and/or PBN inner layer of Smith et al. Both references are drawn to composition that has the advantage of gasoline impermeability, and it would be obvious that such a teaching would lead to the combination of a core-shell rubber combined with a composition of an inner layer of a fuel hose because the inner layer is exposed to fuels such as gasoline. Even though Lee et al. teach advantageous properties such as those stated in applicant's arguments, Lee et al. is not limited to those advantages and also teach the advantage of gasoline impermeability and thus lending motivation to combine Lee et al. with Smith et al.

Applicant argues there is no recognition whatsoever in Smith et al. that is necessary or even preferable to have the inner layer for a fuel hose exhibit improved external appearance of a molded product, elongation under tension, and impact resistance under cold environment and that one of ordinary skill would have no motivation to utilize core-shell particles of the former patent in the inner layer of the fuel hose of the latter patent.

Lee et al. teach that the composition is capable of providing high gasoline resistance is used (col. 1, line 64-col. 2, line 5). This is the motivation of combining the core-shell rubber of Lee et al. with the PBT and/or PBN inner layer of Smith et al. Both references are drawn to composition that has the advantage of gasoline impermeability, and it would be obvious that such a teaching would lead to the combination of a core-shell rubber combined with a composition of an inner layer of a fuel hose because the inner layer is exposed to fuels such as gasoline Even though Lee et al. teach

advantageous properties such as those stated in applicant's arguments, Lee et al. is not limited to those advantages and also teach the advantage of gasoline impermeability and thus lending motivation to combine Lee et al. with Smith et al.

Applicant argues that more specifically Lee et al. teach a polyamide resin composition in which a core shell type rubber is blended in a polyamide resin and that core shell type rubber is used in order to improve external appearance of molded products, elongation under tension, impact resistance under cold environments. This argument is not persuasive for the following reasons.

Lee et al. teach that a rubber and plasticizer capable of providing high gasoline resistance are used (col. 1, line 64-col. 2, line 5). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the core-shell particles of Lee et al. in Smith et al. for the purpose of providing high gasoline resistance (col. 1, line 64-col. 2, line 5).

Applicant argues that Smith et al. does not disclose the use of polyamide resin instead of polyalkylene terephthalate or polyalkylene naphthalate and the use of impact resistant component, plasticizer, and thickener in addition to polyalkylene terephthalate or polyalkylene naphthalate. This argument is not persuasive for the following reasons.

Smith et al. is not relied upon to teach the use of polyamide resin instead of polyalkylene terephthalate or polyalkylene naphthalate and the use of impact resistant component, plasticizer, and thickener in addition to polyalkylene terephthalate or

polyalkylene naphthalate. The combination of Smith et al. and Lee et al. does not necessitate that Smith et al. the use of polyamide resin instead of polyalkylene terephthalate or polyalkylene naphthalate and the use of impact resistant component, plasticizer, and thickener in addition to polyalkylene terephthalate or polyalkylene naphthalate. In response to applicant's argument that Smith et al. does not disclose the use of polyamide resin instead of polyalkylene terephthalate or polyalkylene naphthalate and the use of impact resistant component, plasticizer, and thickener in addition to polyalkylene terephthalate or polyalkylene naphthalate., the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Applicant argues that a simple combination of the teachings of Lee et al. and Smith et al would not yield the presently claimed invention and that a material containing a large amount of impact resistant component as disclosed by Lee et al. is used for forming an inner layer of a fuel hose, it is apparent that the material will cause deterioration of low fuel permeability and sour gasoline resistance properties. This argument is not persuasive for the following reasons.

Lee et al. is not limited to a material containing a large amount of impact resistant component (15 to 35 parts by weight) but teaches the broader range of 1-45 parts by weight of the impact resistant component (col. 2, lines 30-35). Lee et al. also teaches

that the impact resistant component can be core-shell rubber (col. 2, lines 42-44). From this disclosure, it would be obvious that the material produced by the combination of Smith et al. with the teachings of Lee et al. would not exhibit deterioration of low fuel permeability and sour gasoline resistance properties. The combination of Smith et al. with Lee et al. does not necessitate that the inner layer has an impact resistant component. In response to applicant's argument that a material containing a large amount of impact resistant component as disclosed by Lee et al. is used for forming an inner layer of a fuel hose would lend deleterious effects for an inner layer of a fuel hose, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Applicant argues that Kawazura et al. discloses an inner layer and/or outer layer of a hose is composed of a thermoplastic elastomer composition comprising 30-90% by weight of thermoplastic copolyester elastomer and 10-70% by weight of acrylic rubber and that it is apparent that the material will have deteriorated fuel permeability and sour gasoline resistance properties and that the effects of the fuel hose of the presently claimed invention would not be achieved. This argument is not persuasive for the following reasons.

The incorporation of vulcanized rubber in a thermoplastic resin hose is not taught or suggested in Kawazura et al. (col. 2, lines 26-33). Because Kawazura et al.

does not teach that vulcanized rubber is incorporated into the composition of the resin hose of column 2, lines 26-30, the resin hose composition of column 2, lines 26-30 does not have vulcanized rubber and would therefore not be expected to exhibit deteriorated fuel permeability and sour gasoline resistance properties due to vulcanized rubber.

Applicant argues that Shah et al., Gilbert et al., and Han et al., whether taken singly or in combination, do not supply these teaching deficiencies and that none of these references teach an intermediate layer of polybuylene terephthalate, polybutylene naphthalate, polyethylene terephthalate, and polyethylene naphthalate having a layer provided on the outer peripheral surface of an amine-rich resin. This argument is not persuasive for the following reasons.

Shah et al., Gilbert et al., and Han et al. are not relied upon to teach an intermediate layer of polybuylene terephthalate, polybutylene naphthalate, polyethylene terephthalate, and polyethylene naphthalate.In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As to the limitation of a layer provided on the outer peripheral surface of an amine-rich resin, it is unclear what the applicant is arguing.

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically

pointing out how the language of the claims patentably distinguishes them from the references.

Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 1, 2, and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (U.S. 6591871) in view of Lee et al. (U.S. 6733854) and Kawazura et al (U.S. 6179008).

Smith et al. teaches a fuel hose (col. 3, lines 20-23) comprising at least one constituent layer including an inner layer, at least the inner layer comprising a polyester resin (col. 3, lines 60-63). Smith et al. fails to teach particles each having a core-shell structure, the particles being present in a proportion of 5 to 60 parts by weight based on 100 parts by weight of the polyester resin and wherein layers other than the layer comprising the first polyester resin and the particles comprising a polyester resin material.

As to the limitation wherein particles each having a core-shell structure, the particles being present in a proportion of 5 to 60 parts by weight based on 100 parts by weight of the polyester resin, Lee et al., however, teaches a polyamide resin composition comprising polybutylene terephthalate (col. 4, line 24) further comprising core-shell rubber system (col. 2, lines 15-18) comprising 0.5-10 weight% of mixture for the purpose of yielding gasoline resistance (col. 1, line 66) and flexibility under cold environment (col. 2, lines 18-20).

Lee et al. further teaches that core-shell resin composition has excellent gasoline resistance and impact resistance under cold environment which is applicable to a fuel tube system for a motor vehicle (col. 1, lines 9-12).

Therefore, one of ordinary skill in the art would have recognized that the core-shell resin composition is advantageous for use in a fuel tube system for the purpose of providing gasoline resistance (col. 1, line 66) and flexibility under cold environment (col. 2, lines 18-20).

Thus, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a core-shell resin composition comprising polybutylene terephthalate of Lee et al. as the material of the inner layer of Smith et al. in order to provide gasoline resistance and flexibility under cold environment as taught by Lee et al.

As to claim 2, Smith et al. teaches that the inner layer is made conductive by the addition of a conductive agent (col. 3, lines 63-65).

As to the limitation wherein layers other than the layer comprising the first polyester resin and the particles comprising a polyester resin material, Kawazura et al. teaches that it is well known in the resin hose art for a resin hose to composed of a polyester thermoplastic elastomer including polybutylene terephthalate as a hard segment and polytetramethylene glycol as a soft segment for the purpose of improving the flexibility of a thermoplastic resin (col. 2, lines 24-31).

Since Smith et al. requires that the tube is flexible enough to be shaped in any configuration (col. 3, lines 39-40), one of ordinary skill in the art would have recognized to replace the polyethylene of the tie layer of Smith et al. and Lee et al. with polyester thermoplastic elastomer of Kawazura et al. to improve the flexibility of a thermoplastic resin as taught by Kawazura et al.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided polyester in the tie layer of Smith et al. in order to improve the flexibility of a thermoplastic resin as taught by Kawazura et al.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (U.S. 6591871) in view of Lee et al. (U.S. 6733854) in further view of Kawazura et al (U.S. 6179008) and Shah et al. (U.S. 2003/0017329).

Smith et al. teach a fuel hose as described above in claim 1. Smith et al. fail to teach wherein layers other than the layer comprising the first polyester resin and the particles comprising a polyester resin material and wherein the intermediate layer has an outer peripheral surface subjected to an electric discharge treatment wherein a layer provided on the outer peripheral surface of the intermediate layer essentially comprises an amine-rich resin.

As to the limitation wherein layers other than the layer comprising the first polyester resin and the particles comprising a polyester resin material, Kawazura et al. teaches that it is well known in the resin hose art for a resin hose to composed of a polyester thermoplastic elastomer including polybutylene terephthalate as a hard segment and polytetramethylene glycol as a soft segment for the purpose of improving the flexibility of a thermoplastic resin (col. 2, lines 24-31).

Since Smith et al. requires that the tube is flexible enough to be shaped in any configuration (col. 3, lines 39-40), one of ordinary skill in the art would have recognized to replace the polyethylene of the tie layer of Smith et al. and Lee et al. with polyester thermoplastic elastomer of Kawazura et al. to improve the flexibility of a thermoplastic resin as taught by Kawazura et al.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided polyester in the tie layer of Smith et al. in order to improve the flexibility of a thermoplastic resin as taught by Kawazura et al.

As to the limitation wherein the outer peripheral surface of the intermediate layer essentially comprises an amine rich-resin, Shah et al. teach a multi-layer thermoplastic polymer (paragraph 0001, lines 1-4) wherein it is known for a tie layer to comprise an amine for the purpose of adding a reactive functional group (paragraph 0036, lines 6-9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein it is known for a tie layer to comprise an amine for the purpose of adding a reactive functional group (paragraph 0036, lines 6-9) as taught by Shah et al.

As to the limitation wherein the intermediate layer has an outer peripheral surface subjected to an electric discharge treatment, it appears that the instantly claimed product by process is the same as that which is claimed (a layer provided on the outer peripheral surface of the intermediate layer made by subjecting to an electric discharge treatment). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct and not the examiner to show the same process of making. *In re Fessman*, 180 USPQ 324.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (U.S. 6591871) in view of Lee et al. (U.S. 6733854) in further view of Kawazura et al (U.S. 6179008) and Gilbert et al. (U.S. 3111418) and Han et al. (U.S. 5378404).

Smith et al. teach a fuel hose as described above in claim 1. Smith et al. fail to teach wherein layers other than the layer comprising the first polyester resin and the particles comprising a polyester resin material and wherein the intermediate layer has an outer peripheral surface subjected to an electric discharge treatment wherein a layer provided on the outer peripheral surface of the intermediate layer essentially comprises an amine-rich resin.

As to the limitation wherein layers other than the layer comprising the first polyester resin and the particles comprising a polyester resin material, Kawazura et al. teaches that it is well known in the resin hose art for a resin hose to composed of a polyester thermoplastic elastomer including polybutylene terephthalate as a hard segment and polytetramethylene glycol as a soft segment for the purpose of improving the flexibility of a thermoplastic resin (col. 2, lines 24-31).

Since Smith et al. requires that the tube is flexible enough to be shaped in any configuration (col. 3, lines 39-40), one of ordinary skill in the art would have recognized to replace the polyethylene of the tie layer of Smith et al. and Lee et al. with polyester thermoplastic elastomer of Kawazura et al. to improve the flexibility of a thermoplastic resin as taught by Kawazura et al.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided polyester in the tie layer of Smith

et al. in order to improve the flexibility of a thermoplastic resin as taught by Kawazura et al.

As to the limitation wherein the intermediate layer has an outer peripheral surface subjected to an electric discharge treatment wherein a layer provided on the outer peripheral surface of the intermediate layer essentially comprises an amine-rich resin, Gilbert et al., however, teach a process for the treatment of polyolefin packaging materials (col. 1, lines 8-16) wherein polyethylene imine is disposed between plastic sheets for the purpose of promoting adhesion of extruded polyethylene by the process of an electrical treatment (col. 4, lines 19-25).

Han et al. teach a coating (col. 1, lines 17-21) wherein it is known to use an amine or an imine as an electrically conductive material characterized by a charged backbone, which may be formed by a partial or complete protonation thereof (col. 7, lines 60-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein an amine/imine is disposed between plastic sheets in Smith et al. in order to promote adhesion of extruded polyethylene by the process of an electrical treatment (col. 4, lines 19-25) as taught by Gilbert et al. and for the reasoned explanation that it is known to use an amine or an imine as an electrically conductive material characterized by a charged backbone, which may be formed by a partial or complete protonation thereof (col. 7, lines 60-64) as taught by Han et al.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Paul Wartalowicz
October 23, 2006

Steve Bos
Primary Examiner
Art Unit 1754